THE PLANNING AND CONSTRUCTION OF BEET-SUGAR FACTORIES.

By R. H. Weymouth [*F.*].

INTO the question of the construction and planning of a Beet-sugar Factory, both the process of manufacture to be adopted—whether by diffusion or by the Steffen process, &c.—and the size of the factory contemplated—whether to deal with 500 or with 1,000 tons of beet daily—must largely enter, and the general arrangement only can now be considered, leaving untouched the more detailed consideration of the various departments, as these must follow the requirements of the process chosen.

In addition to the factory being always under wise management, and run on sound business lines, there are sundry initial requirements essential to success. The factory *must* be supplied continuously with beets to keep it working at full pressure throughout the whole of the "campaign," i.e., from about the middle of October for a period of 90 or 100 days, the factory usually running night and day, seven days a week, during the whole time. To ensure that there shall be no shortage of beets, the Company promoting the scheme must have control over some 10,000 to 12,000 acres, with, say, one-third of this entire acreage annually laid down under beet. There are various modes of procedure :—

1. The Company can have agreements of five years or so with the neighbouring farmers, in which it is covenanted that so many acres shall be put down under beet annually, in return for cash payment at a fixed minimum price, with an added bonus for sugar percentage in the beet and for tonnage per acre.

2. The Company can run the factory more upon "co-operative" lines, the surrounding landowners and farmers all being shareholders—a method so successful at the great factory at Dinteloord, Holland.

3. The Company can be in possession itself of the 10,000 to 12,000 acres, with the farmers as tenants—the rents of the farms meeting the interest on the initial capital subscribed; the rotation of the beet crop with the other root crops—say once in every four years—to be settled between the Company's Expert and the tenant.

This last scheme, involving in land, factory, &c., an initial outlay of some £400,000 to £500,000, places the Company in the strongest position, and is the one most likely to command success.

The beet crop with its deep and intensified cultivation, its constant hoeings, the unexhausted artificial manures left in the ground and the ploughing-in of the "tops," makes a crop with fine cleansing properties for the land, to the marked improvement of the other crops in the rotation.

Site.

The factory should stand upon a site fairly level, and should have ample ground to itself for its accessories. It should tap all the railways within 40 miles round, as it is by this means coal, lime, and other stores are brought to it, and, in large measure, beets also. By the same means the sugar in sacks, the molasses in casks, and the pulp in powder or cakes are dispatched to market. An excellent position for a beet-sugar factory is alongside a main line, with sidings brought on to its own ground, the sidings

extending past the factory far enough to permit of the shunting on to them of 10-truck coal trains. Alternately with the sidings should come the " flumes "—long channels—into which the beets are shovelled from the trucks. Abroad, the sidings sometimes run over the widened flumes, on girders, and the beets fall into them direct. A siding is needed to be run alongside the sugar store and the pulp house.

The factory should also be so situated that it is easily approached by the county roads, so that carts or the Company's motor lorries or its traction engine with consignments from the near neighbourhood can reach it readily. If ever we adopt in this country a " light railway " system, running alongside all roads, as in the Netherlands to-day, it should prove invaluable in the transport of beets to the factory.

Against the head of both sidings and the roadway on to the factory ground, provision is required for weighbridges (with small offices attached) on which the consignments of beets can be weighed as they are brought in, with soil clinging to them. A sample lot—usually 56 lbs.—is weighed, and from it the entire weight of cart-load or truck-load is calculated. A " dirty " lot of beets, entailing a deal of washing in the factory, is a charge against the beet-grower beyond the 20 per cent. additional weight allowed—a point often overlooked by the farmer.

One of the most essential points connected with the choice of a site is the provision of a good *water supply*. The factory should be able to draw upon a fair-sized river or canal, and the supply of water should be both constant and continuous, with an ample margin. Throughout the " campaign " the factory consumes from two to three million gallons of water daily in the cleansing of the beets and in the process of sugar manufacture ; and water obtainable from a water company's mains is too expensive, or that from its own artesian well insufficient often for such requirements.

Along the river or canal banks considerable wharfage should be formed, at which barges or wherries can be moored with their cargoes of beets aboard. Here is to be provided a travelling crane with a long jib to empty the vessels rapidly and heap up the great beet-stacks over the concrete slopes. Under cover the beets would heat, but piled up in the open the "white " sugar beets come to little harm till the frosts and the alternate sunshine and frost of our January and February arrive, with an action deleterious to the sugar in the root itself. Water-borne beets have to be weighed in a manner similar to that adopted in the case of those brought by road or rail, except that the weight of the cargo is generally ascertained from the vessel's load-line.

Factory Accessories.

The " flumes " above mentioned are brick or concrete channels, egg-shaped at the bottom like a brick sewer, with wide concrete or brick slopes leading thereto, into which the beets are thrown from truck, cart or barge, and along which they are floated into the sump to the washhouse. Water is drawn in from the river and pumped up into large storage tanks at the top of the factory, and with it is mixed the waste warm water from the manufacturing process itself. The water is then brought from that great height to a manhole at the head of each group of flumes, and through the opened penstock, with a great " head " upon it, driving and cleansing the beets floating in its strong current to the sump. The enormous piles of beets on the concrete slopes, weighing some thousands of tons, are drawn away at the bottom by this method to the factory.

The sump—some 10 feet in diameter and 40 feet deep or so—is sunk near to or in the washhouse, and it is often built up *in situ* with circular steel plates, descending of its own weight as it is put together and the soil inside removed. Into it *all* the flumes are carried with a slight fall, the flumes being used in the order the Manager directs.

Opposite the washhouse the settling pond must be formed. This should be excavated over a large area—two acres or so—and embanked all round, and all the spoil from the factory foundations and engine-beds can well be wheeled up and worked into these embankments and a " high-level " discharge

be obtained into the river. The "effluent" is often slightly impregnated, and to guard against trouble with owners of riparian rights it is sometimes desirable to have filter-beds to deal with the effluent satisfactorily before it joins the river whence it came originally. A vast amount of sediment accumulates in the pond during the "campaign," and the clearing out of the settling pond and depositing the sediment on the land (a matter for arrangement between the Company and the beet-grower) is one of the matters needing attention and giving employment to the workpeople during the months the factory is at rest.

The Process of Manufacture.

Beets in a well-equipped and well-managed factory should need no further actual handling after they have been dropped into the flume. Following the customary method of manufacture, the beets are driven by compressed air or other means into the washhouse out of the sump, and, after being thoroughly cleansed in rotary or other machines, they are caught up in an elevator to the topmost platform or floor of the factory proper.

On this topmost platform the beets are re-weighed for "nett" weight and are dropped thence into large circular vessels—the "slicers"—full of skilfully arranged knives; and coming out at the bottom of them, the sliced beets from a travelling carrier fall afresh into "diffusers" (or "infusers"), a series of large circular vats in which the sliced beets are treated with hot water and the "thin juice" is extracted. This "thin juice" is now weighed and mixed with lime to cleanse it of its heavier impurities; then it is driven through a series of filters with canvas strainers; treatment with carbonic gas to clarify follows; and again it is driven, more than once, through a further series of filters. After this final filtration, the juice is thickened into "thick juice" in large circular vessels—"evaporation" pans—and purified afresh in similar but smaller vessels with sulphuretted hydrogen for colour.

The thickened juice or "syrup" is then sent through "vacuum" pans, where under extreme heat of steam it further thickens and crystallization commences; then the partially crystallized mass from a cooling receiver common to all the vacuum pans drops into a row of "centrifugals," in which the sugar in its "granulated" form is flung out, and whence it is driven up on to an upper floor. It descends from that chamber in a shoot into 2-cwt. sacks outside the sugar store.

The residue in the centrifugals forms the "molasses"; this is often drawn off into a large circular reservoir or tank and eventually casked for market, or else it is driven back and worked in with the syrup afresh.

The deposit from the filter presses, called the "slices," largely impregnated with lime and containing a small percentage of sugar in it, is usually heavily pressed and subjected to a baking process in large ovens, whence it comes out in cake or powder as desired, or it is run away in a more liquid form like brewers' grains to serve as cattle food.

The Factory Plan.

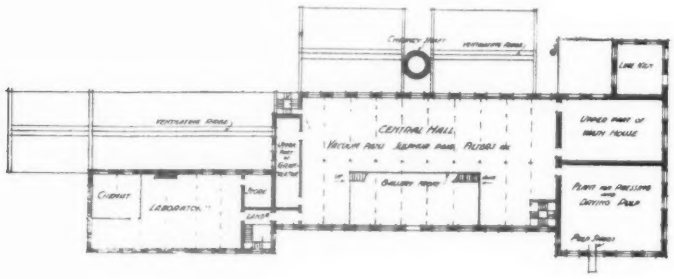
The method of manufacture thus briefly outlined aids one in grasping the general "laydown" of the plan, viz., the washhouse and lime-kiln in one wing, so to speak, facing the flume area and the settling pond (the *wet* side), the large central hall for the manufacture of the sugar itself, and the opposite wing (the *dry* side) where the finished articles are collected, all conveniently backing against the railway sidings.

The boiler-house and the lime store should back right against the sidings, and it should be possible to shoot in coal and limestone just where required, viz., opposite the furnaces and the kiln they feed. The amount of both coal and lime consumed throughout a "campaign" is very great, and forms a very heavy item in the Company's annual outlay; both supplies are usually brought by rail.

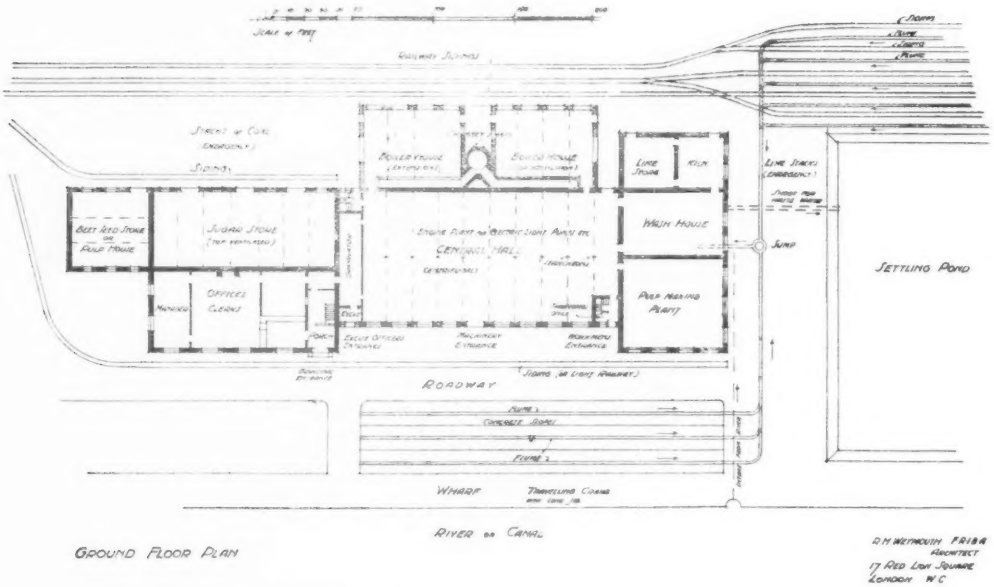
The space on either side of the boiler-house and the lime store gives room for extension and for stacks of "emergency" supplies in the open. The great chimney shaft must find its place here; and as the

whole process is one of working under extreme pressure, it must be of considerable height, to ensure draught to work a range of boilers, the continual stoking of which is done either by hand or by "mechanical" stokers. The high shaft usually dominates the whole countryside.

Adjoining the lime store (with a floor area of some 800 to 1,000 square feet) should stand the steel-framed kiln itself, sometimes in the open, or else enclosed in a kilnhouse of size similar to the store, with an open louvred roof over to allow of the escape of the fumes from the burning lime.



FIRST FLOOR PLAN



GROUND FLOOR PLAN

P.H. WETHERED F.R.I.B.A.
ARCHITECT
17 RED LION SQUARE
LONDON W.C.

In the same wing with the above should stand the washhouse, of an area of some 2,000 to 2,500 square feet, to the side of the central hall. It is into this department that the beets are brought from the sump outside, and here the rotary machinery for cleansing them is fixed, and the foot of the elevator. All the effluent water passes away hence directly into the settling pond facing it.

In close contiguity with the boiler-house should stand the central hall, in which the entire process of sugar manufacture takes place. Placing this central hall against the boiler-house reduces to a minimum the run of the pipes conveying hot water and steam, and effects a considerable saving in the initial outlay. The area of the hall should be some 80 to 100 feet wide by 150 to 200 feet long. On its

ground floor space must be found for a 1,500 to 2,000 h.p. engine, according to factory capacity, and all the plant for electric light installation, pumping work, &c. The granulator occupies a bay or so, and against it stand in a long row the centrifugals. On the upper floor of the granulator is the department where the new-made and still warm sugar is deposited from the centrifugals and whence it is shot down below and weighed. This latter department is cut off from the central hall and is under the supervision of the Excise officials.

A large part of the central hall should be carried up to the roof, and its upper floors only be galleries. The Manager has then, night or day, the entire sugar-making process, with its system of pipes conveying the sugar forward in its various stages of manufacture, under easy control. The atmosphere, when the factory is at full work, grows warm and clammy and contains now and again a whiff of sulphuretted hydrogen, and walls and roof drip pretty freely. This large central space is serviceable, too, for the hoisting under cover of the various sugar-making machines, many of which are of excessive weight.

On the first floor are placed, over the centrifugals below, the series of large circular jacketed boilers, the vacuum pans, and the cooling trough connected with them all, whence the syrup passes on to the floor below. Adjoining are similar " pans," but smaller, in which the syrup is clarified under the action of sulphuretted hydrogen.

On the second floor or gallery there are placed, similar to the vacuum pans, the series of evaporation pans in which the " thin " juice is thickened down to " thick " juice, and also the series of filters used after that treatment.

On the mezzanine floor or gallery stands another row of filters, through which the juice is driven before reaching the evaporation pans ; also the apparatus which extracts the lime from the juice by the action of carbonic acid gas.

The third floor or gallery supports large circular vessels, the " diffusers " (or " infusers " in the Steffen process), in which the " thin juice " is extracted from the sliced beets ; also the measuring tank, and the vessels in which lime is added to the juice in its first stage of purification.

On the floor or platform over, on a steel-framed staging, are usually placed the circular vessels—the " slicers "—with the carrier and the cranked shoots below. An iron companion ladder leads on to the topmost platform of all (cutting through the roof, with a large lantern light), on which the machine stands that weighs for " nett " weight previous to the sugar extraction ; also the head of the elevator from the washhouse.

Very largely the machinery employed decides the heights of the various floors ; but in the main the ground floor should be about 18 feet in the clear, the first floor some 16 feet, and the others some 12 feet. This gives the sugar engineer room to carry along or sling up his runs of pipes satisfactorily.

Above the main roofs, often in the open, are placed the storage tanks, capable of holding many thousands of gallons, into which water from the river or canal, also much of the exhaust and waste-water from condenser and factory, is continuously being pumped. The water flows thence to the range of boilers in the boiler-house and to the fire prevention installation, and is carried in heavy piping to the flume-heads. The use of the exhaust water prevents freezing in the tanks.

Either in the central hall or in the washhouse wing can be placed the machinery for dealing with the " by-product," viz., the sliced beets mixed with lime drawn from the filter presses. This " pulp " contains a small percentage of sugar, and after treatment it becomes a most useful cattle food. The machinery consists of heavy presses to squeeze the pulp as dry as possible, and high ovens in which it is baked to powder or flakes.

The sugar store is to be treated as a " bonded warehouse," with door fastenings, window bars, &c., as laid down in the Excise regulations. Its floor should be of reinforced concrete, as in this building the sugar in sacks is stacked up as high as the building will allow, and when the building is full at the end of the " campaign " the floor is subjected to a very great strain by reason of the weight on it. The

walls should be thick, to withstand lateral pressure, and about 20 feet high; windows high up and comparatively small. Sliding doors should be provided to several openings against the railway siding. A span-roof from end to end with skylights and louvres is advisable, as sugar newly made retains a considerable amount of the heat of its manufacture. It should be some 30 to 40 feet wide and of length commensurate with the factory's capacity of sugar output.

The pulp or beet seed stores should generally follow the above construction, but both are free of Excise control. Abroad the pulp store is sometimes a timber-framed structure resting upon a concrete raft. Should, however, the pulp machinery not be in the central hall with a direct shaft thence into the pulp store, but be erected in the washhouse wing, the pulp is stored on its upper floor and delivered through the wall in a shoot on to a truck or cart below.

The laboratory, where the chemist and his assistants test the sample beets from each lot to ascertain sugar "percentage," and also examine so incessantly the test tubes with specimens of the syrup in its progressive stages of manufacture, should be planned of easy access from the central hall's first floor. It needs ample lighting all round.

The Company's offices can well stand below. The tabulating of percentages for gross and nett weights, &c., &c., takes place here. The Manager's room should overlook the whole of the factory grounds as far as possible.

Minor Buildings.

The workshops for the carpenters, smiths, painters, &c., are usually one-storeyed blocks, well lighted and ventilated, and stand in close proximity to the factory itself.

Near the entrance should be the yard foreman's cottage and the stabling or garage.

Cottages for the employees are desirable, but to place the workpeople out in the villages round is often practicable, and if so the arrangement is a bond of union between the Company and the locality.

On the entrance road should be provided a messroom block, with cloakrooms, &c., and close adjoining the sanitary block for women and girls, under charge of the female staff of the messroom. Latrines for the men can come against the workshops conveniently.

In America the social side of factory life has been greatly developed, with clubrooms, halls, libraries, surgery, &c.; the factory has been made a centre of life and interest to its own beet-growers and the villages round, as well as to its own employees. If run upon co-operative lines under good management such a development should take root over here.

The Manager's house should stand, in this country, to the south-west of the factory, within easy access, night or day. So situated it ensures greater freedom from the smell attaching to beet-stacks and that arising from the fumes of lime-burning.

General Construction.

Regarding the general construction of the factory itself, a steel-framed "skeleton" with steel and concrete floors or galleries seems the most suitable. Frequent improvements in sugar machinery and the consequent "scrapping" of the older plant, or the readjustment of the existing plant after a "campaign," make the adoption of "reinforced construction" throughout a difficult matter, the cutting of holes for pipes and the fixing of new machinery being liable to lead to a quite unavoidable jarring of the whole structure.

All the stanchions and girders and the constructional steelwork generally have to be calculated in close conjunction with the sugar machinery engineer, the heavy plant on the upper floors or galleries often leading to the concentration of enormous weights upon single points, for which provision must be made in pier or stanchion under. The feet of the stanchions should stand upon and be bolted down to a steel raft, all well bedded in a wide-spreading bed of cement concrete. The engine-bed and the foundations to the various kinds of plant fixed on the ground floor require great floor-space and ample concrete.

The external walls can be built either in the older fashion, in brick or stone work, when they will assist in carrying the weights and deadening the vibrations of machinery, or on more modern lines, when they are but wind-and-weather screens encasing or built into the stanchions.

Large wide windows with opening fanlights should run from stanchion to stanchion. Should the initial outlay be cut down in the matter of brick-walling, the annual painting of the stanchions is to be viewed as one of the employments for the workpeople whilst the factory stands idle some eight or nine months.

The floors and galleries can best be of steel construction filled in with cement concrete, with a surface of asphalt or some type of stone-wood. Each floor or gallery must be laid to fall to channels in it discharging into the open, to receive the constant swabbings consequent upon the boiling over of the syrup, &c., &c., and no corners should be allowed where any kind of dirt can accumulate.

Strongly-framed steel principals resting upon the stanchion-heads—external or intermediate—should support the roofs ; these former can well be covered with stout boarding on purlins and slating. Wide skylights are desirable, especially over the well-hole, and large extract shafts to carry off escaped steam, fumes and hot air generally. Similarly a continuous louvred ventilator should be framed into the gable roof to the boiler-house, and all extract shafts and louvred work should be under control with gearing.

The glass in the skylights should be " wire-wove," and the guttering throughout stout enough to receive the ladder-heads against it for the external painting.

In addition to the companion-ladders fixed from floor to gallery, provision should be made for at least two staircases, placed as far apart as possible and communicating with each floor and gallery, with wide landing space, continuous handrail, doors opening out, in accordance with ordinary factory regulations, and at the foot of one of them a timekeeper's office should be worked in ; this entrance and its lobby or hall to be for the use of the workpeople.

On all floors provision should be made for flap-tables and seats, at which the men in charge of the boiling syrup, which needs constant supervision, may rest and partake of food during the long spells of continuous work. They can well be placed under the windows, or against gallery railings, or wherever the machinery leaves a little odd space.

Distempering and painting throughout should take place annually, during the summer months.

Appliances for fire extinguishing must be installed throughout the whole factory—sprinklers, hydrants, hose, &c. The entire staff can be well drilled in their use during the months the factory is at rest, between the " campaigns."

Cost.

The cost of a factory and its equipment must be reckoned at from £120,000 to £150,000, some £80,000 to £90,000 of which would be spent on machinery and plant.

REVIEWS.

IRISH ART SCHOOLS, ARTISTS, AND ANTIQUITIES.

A History of the Royal Dublin Society. By Henry F. Berry, I.S.O., Litt.D., Barrister-at-Law. With Illustrations. 8o. *Lond.* 1915. [*Longmans, Green & Co., 39 Paternoster Row.*]

A Dictionary of Irish Artists. By Walter G. Strickland. One Hundred and Fifty Portraits, etc. 2 *vols.*, 8o. *Dublin and London*, 1913. [*Maunsel & Company, Limited.*]

Royal Irish Academy Collection. Guide to the Celtic Antiquities of the Christian Period preserved in the National Museum, Dublin. By George Coffey, M.R.I.A., Keeper. Second Edition, with 19 *Plates and* 114 *Illustrations.* 8o. 1910. [*Dublin: Hodges, Figgis & Co., Ltd. London: Williams & Norgate.*]

We have heard sometimes of the Irish Capital, have we not? as it was in days gone by, before the Union, with its densely populated districts very dirty; and of many houses, though large, wretchedly dilapidated—an effect of terrible overcrowding and characteristic untidyness. And what of London itself in those times? The unlovely side of Dublin had its contrast. The Irish Parliament still assembled there, the nobility and gentry made use of their town-houses, and the metropolis was a fashionable city in which a good deal of money was spent. Its shops were some of the finest in the world. The Guilds had their procession days when people were kept in spirits by traditional shows; the equipages of the Lord Mayor and Sheriffs were hardly surpassed. The Mansion House was looked up to; distinguished and aristocratic persons accepted hospitality dispensed within its saloons. Charitable institutions were well supported by resident nobility and gentry, merchants and tradesmen; and science and art were encouraged by the Royal Dublin Society, of which many well-known and distinguished persons were members. Capable men produced fine miniatures and oil portraits, choice silversmiths' work, and worthy craftsmanship of all sorts. And yet, when the Union was imminent, it cannot be denied, many good citizens felt the end was near.

> Through Capel Street, soon, as you'll rurally range,
> You'll scarce recognise it the same street;
> Choice turnips shall grow in your Royal Exchange,
> Fine cabbages down along Dame Street.
>
> Wild oats in the College won't want to be tilled,
> And hemp in the Four Courts may thrive, Sir;
> Your markets, again, shall with muttons be filled:
> By St. Patrick, they'll graze there alive, Sir!

After the Union that total decadence of the city Lysaght's playful lines foreshadowed was never verified. Money perhaps became scarcer, but Lady Hardwicke testified (*Two Noble Lives*, Augustus Hare)—"Great wealth does not get a man forward here as in London: the society is small and the individuals proud." This she said being relieved that there was no mishap or misadventure that could have raised a smile on the saucy faces of Dublin on her visit to Mr. Luke White (from whom Lords Annaly descend), a gentleman who had risen from a humble sphere and amassed, with the fairest fame, a large fortune, and whose name occurs in Mr. Berry's fascinating account of all the good work of the Royal Dublin Society, a tonic welcome to those who take interest in Ireland. The history of the Society's Art Schools, and especially the School of Architecture, at the end of the eighteenth and commencement of the nineteenth century deserves to be better known in England. Worth noting is the grant by members at a very large meeting held on the 5th March 1767 when a motion for suppressing the School for Figure Drawing (founded 1759) was negatived. £5 was voted in payment for the following books ordered for the use of scholars attending Mr. Thomas Ivory's classes in the Architectural School: Gibbs' *Architecture*, Loudon's *Art of Building*, Hopper's *Architecture*, Halfpenny's *Builders' Assistant*, Price's *British Carpenter*, *Jesuit's Perspective*—certainly not a bewildering list. There are now far too many text-books. A limited supply is no disadvantage when it drives youths to inquire and take trouble in educating themselves. We may think what the grounding for a profession meant when often a boy was rated as captain's servant on the log-books of the Royal Navy to learn seamanship so that in process of time he might pass and receive his certificate for a Lieutenant, when lads entered the Army as Ensigns as early as fourteen or fifteen years of age and soon had to show their qualities to gain the confidence of brother officers and respect of the men. Many kept up their classics, pursued other studies, and gained a fair acquaintance of one or more foreign languages. Downright hard work could not be evaded after the first stepping-stone of influence had started a career. Some architects there were who had been apprenticed, like Ivory, who served as a carpenter and completed his time in Dublin. We can understand apprenticeship to a trade was not for all, but practical knowledge by direct association with work and men was, and had to be, acquired in other ways, supplemented by builders' guide-books. Professor Aitchison used to tell that Laxton's *Builders' Price Book* was one of the books studied in his young days. There have come about many upheavals, and it may be questioned whether, in some respects, the way for young men has not been made too easy, to their own great disadvantage.

Twenty years after that little batch of books had been granted to the Dublin School we hear, from Mr. Berry, of another supply. "As it is of interest to learn the titles of text-books in use at this time [1786], it may be noted that the following were ordered to be purchased for the Architectural Drawing School—viz., Gibbs' *Rules of Architecture*, Sir William Chambers' *Treatise on Architecture*, Palladio's *Works*, Richardson's *Ceilings and Chimney-pieces*." At this time the School sustained a great loss by the death of Ivory, who had for so many years successfully conducted it.

A subsequent item of interest, under the year 1809, is the report of a committee of Fine Arts (of which James Gandon was a member) on the Drawing Schools, recommending amongst very many other excellent

proposals, that really good pictures by ancient masters should be purchased; that £200 should be spent in furnishing the Ornament and Architectural Schools with good designs and engravings; that the new figure-master be the best possible, and advertised for in England, if necessary; and that boys under 13 be not admitted to the Architectural School. A few paragraphs indicate the scope of work done a little later but still early in the nineteenth century. During the years 1813–19 (inclusive) 314 boys received instruction in the Figure School—a means of improvement for engravers in wood and copper, for herald painters, engravers in cameo and intaglio, die-sinkers, and sculptors. 505 pupils were admitted to the School of Ornament during the same period of seven years, and the course of instruction pursued in it was of incalculable benefit to sculptors in stone, wood, metal, to glass workers, chasers, silversmiths, calico printers, pattern-drawers, paper-stainers, embroiderers, jewellers, fancy-workers, damask, carpet and silk weavers, stucco men, cabinet-makers, upholsterers, and carpenters.

In the year 1818 it was stated that from 30 to 35 pupils attended the School of Architecture each year, and during the time of Henry Aaron Baker, who had served as master for a period of 33 years, "there was not a working tradesman or mechanic in the building line in Dublin and the chief towns of Ireland who, during his apprenticeship, had not received instruction in it. Even the rapid improvement noticeable in shop fronts and the ornamental parts of private houses during the period were attributed to the skill acquired by artisans educated in the School." Baker died in 1836, having guided the School for 49 years, and in 1838 John Papworth, of Dublin, A.R.H.A., was appointed to succeed him. And so we arrive at the commencement of the Victorian era, though Papworth, doubtless, carried forward good tradition.

For some account of artists and other interesting men who were trained in these Schools or connected with them Mr. Berry's book must be consulted. More detailed accounts, with authenticated lists of their works, we get from *The Dictionary of Irish Artists*, by Mr. Walter G. Strickland, an expert in this department as distinguished as Mr. Berry in record work. It is much to be hoped that Mr. Strickland will see his way to publish a fellow *Dictionary of Irish Architects, etc.* In late years in England there has been written expressions of appreciation of the fine public buildings in Dublin, and something has been heard of the lives of the men responsible for them. We have had also the Irish volumes dealing with old Dublin houses, but we should like to know more of the men who had a hand in their erection and decoration. In time we hope here in England to know more about Ireland's art treasures and antiquities—some the very choicest in the United Kingdom. Within easy reach at the moment, Mr. Coffey's scholarly work mentioned at the head of this notice is a store of instruction and information, with excellent illustrations. HARRY SIRR [*F.*].

ARCHITECTURAL WORK IN INDIA.

Annual Report on Architectural Work in India for the year 1914–15. *By John Begg, F.R.I.B.A., Consulting Architect to the Government of India. Fo. Calcutta*, 1916.

Mr. Begg mentions that in deference to various disinterested criticisms and in obedience to Government instructions he has introduced into his Report this year a prefatory section giving critical comments on work done and summing up the year's progress. This is a most useful innovation, and it has been done in a very interesting way. The completion of the central block of the Prince of Wales Museum of Western India, Mr. Begg regards as the most important mark of progress which has appeared for many years. A competition for this building was instituted in 1908, open to architects resident in India, to whom were added four selected and invited British architects. The competition was won by a resident architect, Mr. G. Wittet [*F*] (since appointed Consulting Architect to the Government of Bombay), with a very able design in an adaptation of a phase of Byzantine. Though the planning and general arrangements of this design were universally admitted to be the most suitable of all amongst those submitted, yet so strong a feeling of distaste to the unfamiliar style of the exterior was manifested that it was proposed to reject the design in favour of one of the others. None of these, however, was considered to fulfil the requirements so well in point of planning, nor to be capable of construction without considerably greater expenditure. Eventually it was decided to retain the chosen plan, the elevations to be remodelled in a style based on indigenous work, an example of such a style of design being seen in the new Bombay General Post Office then approaching completion. Mr. Begg describes it as a highly successful piece of work and specially interesting for the admirable way in which forms and architectonic ideas of indigenous character have been employed without sacrifice either of its modernness and suitability to its purpose or of its consonance with the true spirit of Indian work. It is living work, and no experiment in antiquarian revivalism, no counterfeit of antiquity, but a model of what an Indian modern public building should be.

Not the least interesting feature of the building (says Mr. Begg) is the treatment of the interior. "It furnishes a complete answer to the many opponents of the indigenous manner of design who have been accustomed, while admitting the opportunities for picturesque exterior handling afforded by the style, to maintain that it is impossible to carry a consistent treatment into the interior in view of the complicated and utilitarian (and necessarily Western) requirements of modern life there to be met with. There you must, they would say, allow Western forms to prevail, and so the consistency of your style treatment is lost. But here we have the thing done without loss of consistency, without an undue Westernising of the details, and (though this may be an example of the art that conceals art) without apparent effort. The architect is to be congratulated on the result, and those also may be proud who can justly claim any share in the pioneer work of helping to build up a manner of modern design that has led to such result. In fact, with the completion of this building this particular school of design may be considered as having established itself, and as having done a notable service to Indian art by demonstrating

the possibility of the existence of a living modern Indian architectural style inspired by the work of the past, and employing the still living indigenous tradition, evolved on the soil of India amid the stress of modern requirements and conditions and in full recognition of modern methods of construction and building administration.

In the case of the Post Office inspiration was drawn chiefly from Bijapur in the Deccan. In the Museum the style has been enriched by extending the field of study to Ahmedabad and Champanir in Gujerat. There has also been contributed to it in this instance matter not unworthy to be studied along with the work of all three. There is no reason why, by a further extension of the methods employed, and in response to the varied requirements of modern life, this school of design should not yield even better results in the future, and should not continue to demonstrate its possibilities of infinite variety and charm.

Judging from the two exterior and two interior views of the Museum which are among the twenty-two plates that accompany the Report, Mr. Begg's commendation is well justified. He has also words of praise for the lay-out plan of the new Capital at Patna, for which Mr. J. F. Munnings [*A.*], Consulting Architect to the Government of Bihar and Orissa, is responsible. The main feature of the lay-out is a Central Avenue 200 feet wide, running almost due east and west, terminating before Government House in a circus and parking ground. It is about a mile long between Government House and the Secretariat, which buildings close the two vistas. Through the capital runs the old bed of the Sone River which, with the levels of the surrounding country, more or less fixed the form the lay-out must take. All the curved roads follow the natural contours of the site, and none have dead ends. The main roads are 150 feet wide, the service roads 60 feet; along the latter all water, drainage pipes and lighting poles and wires will be placed. A reproduction of the plan is given, and it is fully described in Mr. Munnings's Report which is included in the volume.

Mr. Begg points out that during the past few years there have been certain very decided signs of progress all over India. The greater attention to finish which the architect has induced has led to a marked improvement in the quality of the ordinary building brick. The wrong uses of pointing, incorrect and slovenly jointing of stonework, and the many sins of the brush in paint and colour wash, all show a tendency to disappear. As for architecture itself, Mr. Begg says:

> The greater extent to which the architect is consulted, and his growing hold on the work of government in the country, are attested to by the increase in the number of architects in Government employ which a few years has shown. I came to India in 1901 as the first qualified—that is, architect-trained—architect in Government service. The list I give in this Report gives the names of twenty-two architects now in Government service. Of these 75 per cent. have been brought out during the past five years. So that the quantity of work of a certain high standard that is put out annually is very much in excess of what it has ever been before. As to the quality there is no doubt that the standard is every year being pushed higher. For this we must look to the individual buildings, and in so far as I have been responsible for a large number of these, I am here faced with a task of some delicacy. But let me take two buildings both by other men than myself—and each an example of diametrically opposed schools of thought, as they are also of widely different types of construction—the Temporary Secretariat at Delhi, and the Prince of Wales Museum at Bombay. These, each in its own way, represent high-water marks of architectural design.

Among the illustrations is a view of an interesting reinforced concrete bridge at East Baigul, United Provinces. It is not an architect's work, and it finds a place in the Report, Mr. Begg says, "because of its extreme and uncompromising plainness. In spite of its plainness, nay because of it, it attains a certain measure of unquestionable beauty. It has no feature or detail that is not introduced for a definite purpose or that is not the outcome of necessities of construction or use, and so it comes nearer to the highest ideal of architectural art than many a work covered with 'mouldings, features, and ornaments' and full of 'architectural pretensions.' Its artistic merits may be somewhat unpremeditated and unconscious, but they are none the less positive."

Included in the volume are the Reports of the following Consulting Architects to the various Provincial Governments:—Mr. G. Wittet [*F.*] (Bombay); Mr. E. Montague Thomas [*F.*] (Madras); Mr. Henry A. Crouch [*F.*] (Bengal); Mr. E. J. Pullar [*F.*] (Burma); Mr. Frank Lishman [*F.*] (United Provinces); Mr. Joseph F. Munnings [*A.*] (Bihar and Orissa); and Mr. B. M. Sullivan [*A.*] (Punjab).

The Work of William Burges.

Mrs. J. Wentworth Watson, niece of the late William Burges, A.R.A., has presented to the Institute, through Mr. R. A. Briggs [*F.*], a further collection of examples of her uncle's work. They consist of original drawings bound up in a large portfolio, and include designs for wall-papers and painted mural decoration, cartoons for stained glass, designs for furniture, and a series of highly finished anatomical studies, human and animal. Altogether it is a very interesting collection, and affords striking evidence of Burges' powers of decorative design. Members visiting the Library should not fail to inspect them.

Books Received.

History of the Society of Dilettanti. Compiled by Lionel Cust, M.A., and edited by Sir Sidney Colvin, M.A. Printed for the Society. Reissued with Supplementary Chapter, &c. 1*a.* 8*o.* Lond. 1914. 25*s.* net. [Macmillan & Co., Ltd.]

The Relation of Sculpture to Architecture. By T. P. Bennett, A.R.I.B.A. 8*o.* Cantab. 1915. 15*s.* net. [Cambridge University Press.]

School Sanatoria and Infirmaries. By Keith D. Young [*F.*]. Reprinted from *School Hygiene*. Pamph. 8*o.* Lond. 1916. [Adlard & Son, Bartholomew Close, E.C.]

The Sequel to Catholic Emancipation: the Story of the English Catholics continued down to the re-establishment of their Hierarchy in 1850. (With chapters on the influence of Augustus Welby Pugin.) By the Right Rev. Monsignor Bernard Ward, F.R.Hist.Soc. 2 vols. 8*o.* Lond. 1915. 21*s.* [Longmans, Green & Co., 39 Paternoster Row.]

The Village Church. By the Rev. P. H. Ditchfield. With 15 Illustrations. 8*o.* Lond. 1915. 5*s.* net. [Methuen & Co., 36 Essex Street, W.C.]

Limes and Cements: Their Nature, Manufacture, and Use. An Elementary Treatise. By Ernest A. Duncaster, B.Sc. 8*o.* Lond. 1916. [Crosby, Lockwood & Son, 7 Stationers' Hall Court.]

LEONARD JOHN FINNING [*Associate*].
Sergeant, 24th Bn. 6th Australian Infantry Brigade.
Killed in action (see p. 172).

TOPHAM BECHER DABRIDGECOURT HOUGH
[*Probationer*].
2nd Lieut., 8th East Yorkshire Regiment.
Killed in action (see p. 172).

DENIS H. WALKER [*Student*].
Captain, 5th Bn. A.P.W.O. Yorkshire Regiment.
Died of wounds (see p. 141).

9 CONDUIT STREET, LONDON, W., 18*th March* 1916.

CHRONICLE.

R.I.B.A. Record of Honour.

Killed in Action.

FINNING, LEONARD JOHN [*Associate*], Sergeant, 24th Bn. 6th Australian Infantry Brigade. Killed in action in Gallipoli on 4th October.

Sergeant Leonard J. Finning was the only son of Mr. John Finning, of Exton, Pinhoe, Exeter. He was educated at Hale School, and served his articles with Messrs. Commin, Son, & Bolley, of Exeter. He studied at the Royal Albert Memorial University College, Exeter, and under Mr. G. A. T. Middleton for the Intermediate Examination in 1907, and Messrs. Bond & Batley for the Final in 1911. In 1907 he went to Australia, where he worked for a time in the office of Messrs. Oakden & Ballantyne, and returned to England for the Final Examination in 1911. After his election as Associate he went to the United States to gain further experience, and subsequently returned to Melbourne, entering again the office of Messrs. Oakden & Ballantyne as chief assistant. On the outbreak of war he joined the infantry brigade and quickly gained his sergeant's stripes. Captain Parkes, the commanding officer of his company, in a letter of condolence to Mr. John Finning, says: "His death was a very great shock to myself and my brother officers and men. . . Your son was respected by us all; so much did the late commander of our company and myself think of him that we had recommended his promotion to the rank of Second Lieutenant, and were daily expecting to hear it confirmed."

HOUGH, TOPHAM BECHER DABRIDGECOURT [*Probationer*], 2nd Lieut., 8th East Yorkshire Regiment. Killed in France on 18th January, aged 18 years and 9 months.

Second Lieut. Hough was the only child of Mr. and Mrs. Topham Hough Hough, of 65 Tennyson Avenue, Bridlington. He was educated at the Bridlington Grammar School, where he won several prizes for art. Intended for the architectural profession, he passed the R.I.B.A. Preliminary Examination and was registered Probationer in July 1914. It had been arranged for him to serve his articles with Mr. John Bilson [*F.*]. He had been an active member of the Officers' Training Corps of his school, and being gazetted 2nd Lieutenant shortly after war broke out he was posted to the 8th East Yorkshire Regiment, and in December 1914 he passed the Examination qualifying for Lieutenant's rank. He left for France on the 6th October 1915, and had been employed in the trenches and on sapping and mining work. His Colonel writes:—"During the time he has been with us he has gained the respect and confidence of all he has come in contact with, and I feel that I shall be unable to find another to quite make up the loss his men feel at the death of their platoon commander." Second Lieut. Hough was a kinsman of Major John Pickard Becher, D.S.O., and Lieut. H. O. D. Becher, both of whom have fallen in the war.

The Council and Standing Committees: Prolongation of Office.

The question of retaining the present Council and Standing Committees in office for another year, in order to avoid holding the usual elections whilst so many members are absent serving with the Forces, was brought up for the consideration of the General Body at a Special General Meeting held on Monday, the 13th inst. Before effect can be given to the proposal, if agreed to by the General Body, the sanction of the Privy Council has to be obtained to the suspension of the By-laws governing the elections, and the Meeting was asked to authorise the Council to take the necessary steps to obtain such sanction. By-law 67 requires a quorum of at least forty Fellows to decide a question of this kind, and this number was well exceeded, there being fully fifty present when the vote was taken.

Mr. H. D. SEARLES-WOOD [*F.*], Chairman of the Finance and House Committee, who was called upon by the President to move the resolution on behalf of the Council, reminded the meeting that there were no controversial questions before the Institute, and the Council were pledged not to deal with such matters during the war. He urged the desirability of suspending the elections principally on the ground of economy. As Chairman of the Finance Committee, he assured the meeting that it was becoming increasingly necessary to exercise economy. The elections would cost over £60, and it was desirable to save this sum if possible. Again, nearly 600 members were serving with the Forces, and there was no certainty of getting the election papers into their hands. Mr. Searles-Wood went on to say that the Finance Committee were exercising every possible economy. It had been decided not to go to the expense of printing the KALENDAR for 1916–17, but to issue instead a Supplement to the current KALENDAR, giving the names of new members, changes of address, and necessary information about the meetings, &c. A further economy would be effected by holding one Examination only instead of two during the current year. Mr. Searles-Wood then moved the following resolution:—"That in accordance with the provisions of Clause 33 of the Charter application be made to the Privy Council to sanction the suspension of the By-laws governing the Annual Election of the Council, the Standing Committees, and the Hon. Auditors, so that the Council, the Standing Committees, and the Hon. Auditors elected in June 1915 shall remain in office until the 30th June 1917."

Mr. A. W. S. CROSS [*F.*], *Past Vice-President,* in seconding the resolution, said that Mr. Searles-Wood had put before them very cogent reasons for not holding the elections this year.

In reply to Mr. BERNARD DICKSEE [*F.*] the SECRETARY referred to By-law 27, and stated that the term "Council" in the resolution included the President, Vice-Presidents, and Hon. Secretary.

The resolution was carried unanimously.

Charing Cross Bridge.

The South-Eastern and London, Chatham, and Dover Railway's Bill was read a second time in the House of Lords on the 8th March.

EARL BEAUCHAMP moved an instruction to the Committee on the Bill to take into consideration the traffic requirements at this point of the river and the effect that this Bill, if passed, would have upon them, and to hear evidence from the Royal Institute of British Architects, the London Society, and others on the treatment generally of this very important part of London.

The EARL OF DONOUGHMORE said he understood that the noble lord opposite, who was in close touch with the railway company, would not object to the instruction in a slightly different form. An instruction to a Committee of the House of Lords was most unusual; they had not had one carried for ten years. If the words "traffic requirements at this point of the river" were omitted, and words were inserted to show that the Committee should take into account the effect of the Bill upon "the general appearance of the river," he would not oppose it.

VISCOUNT CHILSTON said he was quite ready to agree to the instruction if the proposed amendment was made. It would give the Royal Institute of British Architects and the London Society the right to be heard. The bridges the railway company already had power to build would be a greater impediment to river traffic than would be caused by the strengthening of the existing bridge to enable it to carry to the full extent the traffic necessary in ordinary circumstances. The railway company admitted that the existing bridge was unsightly. They would be glad to see it removed, but, after all, they were not philanthropists; they were practical people, and they were not prepared to build a new bridge merely to meet the views of people with æsthetic tastes.

The MARQUESS OF CREWE said the question of the improvement of the appearance of the river at that point was one of supreme importance, and he rejoiced that evidence of the kind suggested would be admitted.

There was some discussion upon the difficulty of finding a form of words which would meet Earl Beauchamp's wish to include traffic in the instruction, and the debate was ultimately adjourned.

Honours for the President.

The Committee of the Athenæum Club, under the rule which empowers the annual election of a certain number of persons "of distinguished eminence in Science, Literature, the Arts, or for Public Services," have elected the following:—The Rev. Ernest William Barnes, M.A., Sc.D., F.R.S., Master of the Temple; Mr. Ernest Newton, A.R.A., President R.I.B.A.; and Professor Thomas Frederick Tout, F.B.A., Professor of Mediæval and Ecclesiastical History in the Victoria University of Manchester.

Business Preparation Classes for Substitutes for Men on War Service.

We are asked to announce that these classes have been established by the London County Council at the request of the Clerical and Commercial Employments Committee of the Home Office for the purpose of preparing educated young women as substitutes for men who have been withdrawn from clerical and commercial occupations for service with His Majesty's Forces. It is hoped by means of the classes to organise a systematic supply of substitutes to fill the gaps which will occur as men are called up in their groups under Lord Derby's scheme. The instruction is divided into courses applicable to the general requirements of a business house and to the particular requirements of routine work in banks, and municipal, insurance, railway, or shipping offices. In view of the short period covered by the courses (three weeks), and of the scope of the instruction provided, every care is taken in selecting candidates for admission to courses, and no candidate is accepted until it has been ascertained by personal interview that such candidate would be likely to prove satisfactory after training. At the conclusion of each course the knowledge of the candidates is tested by means of an examination, and those candidates who pass the test are awarded a certificate showing that they have satisfactorily completed the course for which they have been admitted. About 1,000 candidates have been accepted for courses of instruction. Of this number over 650 have satisfactorily completed courses and have been awarded certificates of proficiency. The demand of employers for substitutes has been such that it is anticipated that the supply of trained substitutes will be speedily exhausted. Among the appointments which have been secured by students who have passed through the courses are: Government offices, 50; Municipal offices, 25; Insurance offices, 120; Railway offices, 25; general commercial houses, 151. The demand is rapidly increasing—300 vacancies in railway and insurance offices having been notified to one training centre alone—and will, no doubt, be greatly accentuated as the groups are called up under Lord Derby's scheme. Classes have already been organised at the City of London College, White Street, Moorfields, E.C.; Goldsmiths' College, Lewisham High Road, New Cross, S.E.; Fulham Training College, Finlay Street, Fulham Palace Road, S.W.; Pitman's School, Southampton Row, W.C.; St. George's College, Red Lion Square, W.C. For information concerning the classes, communications should be addressed to the Education Offices, Room 149, L.C.C. Education Offices, Victoria Embankment, W.C.

After-the-War Problems.

The question of the settlement of discharged sailors and soldiers upon the land, which is recommended by the recent Departmental Committee's Report, will be dealt with at the Annual Meeting of the Garden Cities and Town Planning Association, which will be held at the Mansion House on Wednesday afternoon, 22nd March. The Lord Mayor will preside, and among those taking part will be the Marquis of Salisbury, the President of the Association, and the Earl of Selborne, the President of the Board of Agriculture, who will deal with the proposals in the Report. It is also hoped that a prominent sailor and soldier will speak from the point of view of the Services. The

formation of Garden Villages, with the idea of a more general distribution of the population upon the soil, has been one of the chief aims of the Association since its foundation, and at the outbreak of war a special committee was at work with the idea of establishing a small holdings colony. The Association has offered its assistance to the Board of Agriculture in regard to the proposals, and the experience which has been gained in the development of the estates which have been developed will doubtless be of assistance.

Art through the Emancipation of the Workman.

At the concluding function of the Sixth Annual Convention of the American Federation of Arts, the following message to the Convention was read from Mr. Ralph Adams Cram [*Hon. Corr. M.*]:—

"The War is the great revealer, the great awakener, and when once the contest is settled, and settled right, there can only come a demand for art such as has not been witnessed for centuries.

"I do not think the importance of the part the craftsman and the workman must bear in this new art revelation can be over-estimated. One fatal element in such art as we have acquired during the epoch that has succeeded the Renaissance is the unwholesome and pernicious theory that art is a question solely of design and of individual expression. So long as this heresy is held there can be no art, for art in itself is essentially communal, and its content is furnished by a society that is at one with itself.

"Again, there never has been and there never can be any period of great art where conception and production are severed one from the other. So long as the artist is a man apart, the workman or the craftsman an accessory (or, as has so frequently happened of late, an accomplice), so long what art we have will be a simulacrum, not a reality.

"In my own art of architecture I have come to realise of late how little actual design has to do with the excellence of a building, how much, actually, workmanship and execution have to do with its excellence. If the man who conceives a general ideal of a building is unable, as of course he is, to put it in visible and material form, then those to whom is entrusted this work must be, in a very real sense, his *alter ego*. Between the architect or designer and the workman and craftsman must be a community of sympathy and interest so complete that the result is almost identical. I do not care how great an architect is; I do not care how striking and convincing his conceptions may be when they are shown in the two dimensions of paper and pencil, if these are not worked out under an equally artistic impulse and through an equally artistic ambition on the part of the workman, then the building is itself, and will for ever remain, a failure; while, on the other hand, given a group of enthusiastic and conscientious workmen labouring under just and stimulating conditions, I am prepared to guarantee that the simplest design may be made into a thing of enduring beauty.

"The problem before us to-day is not so much the further and progressive education of the architect, as it is the emancipation of the craftsman and the workman from the bonds in which they now are held. These bonds are, speaking categorically, first, that attitude of the architect and the general public which presupposes that the workman is merely a blind and unintelligent tool; that all design of whatever sort must emanate from an architect and his draughtsman, and that the manual labour involved in stone-cutting, joinery, and metal work is a thing to be left under the direction and control of a general contractor; and second, the mistaken attitude of many labour unions, which to-day discourage emulation amongst their members or any tendency to rise above the dead level of mediocrity, and the further effort to eliminate altogether the apprentice system, together with the allied principle that all a man has to do is to work for a constantly decreasing number of hours for a constantly increasing pay, regardless of the quality of work he produces.

"Between the trades unions of to-day and the guild of the Middle Ages there lies a deep gulf, for in the latter case the guild not only looked out for the individual interests of all its members, but it also guaranteed a certain standard of work, and this the highest of which the men were capable. If the architects on the one hand and the unions on the other, with an intelligent public opinion vitalising both, can come to a point of realising the absolute identity of interest between both parties and the vast importance of good workmanship, not only to the carrying out of a work of art, but to the raising of the intellectual and moral standard of the workman, then a new future will dawn for art in all its forms.

"Of late we ourselves have been making several experiments in this direction. We are to-day building one church where we are giving to the workmen a latitude that is probably unheard of in recent times. We are stimulating their sense of initiative, arousing their pride in execution, and the results are nothing short of amazing. We find that we can take the most indifferent and uninterested workmen—English, Scotch, Italian, German, American—and by appealing to their pride in work and their joy in creative labour, obtain from them workmanship as good as any ever produced in the best eras of the past. I am persuaded, therefore, that those who claim that the standards of labour have so degenerated during the past centuries, that confidence and responsibility can no longer be placed in the man, are speaking without foundation, and I know now beyond possibility of contradiction or question, that the common stonemasons, joiners, plasterers, metal-workers, are not only glad and ready to assume new responsibilities and achieve new standards, but that they are as capable of doing this as they ever were in the past.

"This is the one point that I hope to emphasise, and I urge its consideration on every member of the American Federation of Arts, for this new principle

(which is also the oldest in history) is also the principle of a great federation, and after more than a quarter of a century of practical experience in at least one branch of art, I am finally and definitely persuaded that only by such federation, only by such community of interests and emphasising of personality, shall we ever be able to produce again art comparable with that of the past and capable of adequately expressing the new ideals in religion and philosophy and life that must be the issue of the present cataclysmal war, and that in themselves are the only foundation on which can be built a great and enduring fabric of art expression."

The Landscape Architect's Calling.

A Department of Landscape Architecture has recently been established at Ohio State University. Touching upon the qualifications essential to success in this field of art, the prospectus of the new Department says: "The prospective student should not be misled into believing that anyone who is fond of the Out-of-doors and who appreciates Nature can necessarily become a proficient landscape architect. If such were the case, almost everyone would qualify. It must be remembered that this is primarily an art closely related to architecture and painting, the difference being chiefly in the medium of expression. One who has the essential qualification of taste, but is not able or willing to study thoroughly into the engineering and mathematical problems so intimately associated with all large landscape operations, is usually doomed to fail. It is a peculiar art in this respect, very much like architecture, which concerns itself not only with form, colour, and composition, but with the strength of materials, stresses and practical problems of construction. The student should consider well before deciding on a career in which the competition is constantly increasing, and for which he is not naturally adapted. The object of this announcement is not primarily to advertise a new Department, but to give a clear appreciation of the field and the special requirements necessary for successful practice."

Registration of Architects in America.

By authority of the Board of Regents of the State of New York, the State Board for the Registration of Architects have instituted a competition for the purpose of securing a design for a Registered Architect's Certificate of a character and artistic quality worthy of the profession. The competition is open to all architects, draughtsmen or other designers, resident or doing work in New York State. The certificate, which is to be designed for reproduction from an engraved steel plate and printed on parchment, is headed "University of the State of New York, Board of Regents," and goes on: "Be it known that..... has given satisfactory evidence that he has the qualifications required by law, and is hereby authorised to employ in the State of New York, the title of 'Architect.'" The seal and signatures of the State Board follow and the words: "In witness whereof the Regents grant this certificate, No....., under seal of the University." The competition will be assessed by a jury of seven, and four prizes are offered—first, $200; second, $150; third, $100; fourth, $50. The Bill for the Registration of Architects passed both Houses of the Legislature, and became law in the State of New York on the 5th May 1915.

The Brothers Adam.

Messrs. Batsford, Ltd., announce the forthcoming publication of an important work entitled *Robert Adam and His Brothers: Their Lives, Work and Influence on Architecture, Decoration, and Furniture*, by John Swarbrick [*A.*]. No adequate record has yet been made of the Adams' lives and work. Mr. Swarbrick has devoted a large amount of careful research to the subject, having visited most of the work of the Adams in various parts of the country. Most of the illustrations are from photographs taken under his supervision by well-known architectural photographers. The aim of the book is to show a representative selection of their best work. Full sets of illustrations will be given of the interiors of certain well-known houses not hitherto illustrated, as they have been generally inaccessible. These include Syon House, Isleworth; Harewood House, Yorkshire; Kedleston House, Derbyshire; Lansdowne House, Berkeley Square; Kew Wood, Highgate; No. 20 St. James's Square, once the town house of the Williams-Wynn family; Stratford House; No. 20 Portman Square, and many others. The views include exteriors and interiors, with such decorative features and details as chimney-pieces, ceilings, wall-treatments, doors, door-fittings, medallions, mirrors, ironwork, grates; also pieces of furniture and designs for clocks, harpsichords, brackets, sedan chairs, and marquetry, reproduced from executed examples or the artists' original designs. The illustrations, 220 in number, include a series of fine collotypes, some being double-page plates. The book is quarto in size, bound in art linen; price two guineas net.

The English Chancel.

The Oxford University Press will publish shortly another volume by Mr. Francis Bond [*Hon.A.*] in the "English Church Art" series entitled *The English Chancel*. For the first time a detailed history is given of the English altar and its successor, the Communion Table; also of the seventeenth-century controversies by which altar rails were introduced, and placed sometimes on all four sides of the table, sometimes on three sides, and finally on the west side only. With this is incorporated an account of the various forms of the English reredos and other accessories of the altar. Then comes a description of the piscina in both its forms, the credence shelf, and the sedilia. The existing examples of the Easter sepulchres are illustrated, and the remarkable ritual of Passiontide is described. On no member of the English mediæval Church was such consummate art expended as on the sedilia and piscina, and these and the other contents of the English chancel are very fully illustrated.

The Civic Survey's Guide to London.

The Civic Survey of Greater London, now working in the Galleries of the Royal Institute of British Architects, 9 Conduit Street, W., has prepared for the National Council of the Y.M.C.A. a large-scale map of London, which is to be posted up in every Y.M.C.A. centre at home and abroad, and at the principal stations and prominent points in the streets, to supply soldiers and sailors with all the information they require in getting from the railway terminus where they detrain to their place of call, or to places of general interest. The map not only shows the principal thoroughfares and railway stations and routes, as well as the Underground railways, but marks clearly the Y.M.C.A. centres (where soldiers and sailors are sure of finding accommodation), officers' clubs, Dominion and Oversea Clubs, soldiers' and sailors' clubs, baths, etc. The map will show at once the nearest way by road or rail to various points of interest.

Chadwick Public Lectures.

A course of three lectures on the "Domestic Arterial System in relation to Comfort and Health" is in course of delivery by Dr. Charles Porter, Medical Officer of Health, Marylebone, at the Household and Social Science Department, King's College for Women, Campden Hill Road, W., on Wednesdays, 15th, 22nd, and 29th March, 1916. Lecture I. dealt with Drains and Drainage; Lecture II. will deal with Water Supply, and Lecture III. with Heating and Light. The lectures are illustrated by diagrams and lantern slides. Admission free. Miss Rosamund Shields, the Warden, presides at next week's lecture, and Mr. John Slater [*F.*] on the 29th.

MINUTES.

At a Special General Meeting held Monday, 13th March 1916, at 4.30 p.m.—Present: Mr. Ernest Newton, A.R.A., *President*, in the Chair; Mr. E. Guy Dawber, *Hon. Secretary*; 50 Fellows, and 2 Associates—the Minutes of the Special and Business Meetings held 28th February 1916, having been published in the JOURNAL, were taken as read and signed as correct.

The Hon. Secretary announced that Sergeant Leonard John Finning [*Associate*], of the 24th Battalion 6th Australian Infantry Brigade, was killed in action in Gallipoli on the 4th October, and it was resolved that the deep regrets of the Institute for his loss be entered on the Minutes and that a message of sympathy and condolence be forwarded to his relatives.

The decease was also announced of George William Watson, of Melbourne, *Associate*, elected 1880; and Harry Edwin Rider, *Licentiate*.

The President explained that the Meeting was called to consider a proposal submitted by the Council that the present Council and Standing Committees shall remain in office for another year in order to avoid holding an election whilst several hundred members are absent serving with the Forces.

On the motion of Mr. H. D. Searles Wood [*F.*], seconded by Mr. A. W. S. Cross [*F.*], it was thereupon

RESOLVED, unanimously, that, in accordance with the provisions of Clause 33 of the Charter, application be made to the Privy Council to sanction the suspension of the By-laws governing the Annual Election of the Council, the Standing Committees, and the Hon. Auditors, so that the Council, the Standing Committees, and the Hon. Auditors elected in June 1915, shall remain in office until the 30th June 1917.

The proceedings then closed, and the Meeting separated at 4.50 p.m.

NOTICES.

A SPECIAL GENERAL MEETING will be held on Monday, 27th March, 1916, at 4.30 p.m., to confirm the Resolution passed at the Special General Meeting of the 13th March—viz.:—

"That in accordance with the provisions of Clause 33 of the Charter, application be made to the Privy Council to sanction the suspension of the By-Laws governing the Annual Election of the Council, the Standing Committees, and the Hon. Auditors, so that the Council, the Standing Committees, and the Hon. Auditors elected in June 1915, shall remain in office until the 30th June, 1917."

On View in the Common Room.

Drawings for Subject XXV.: (*a*) A Small Public Library; (*b*) A Municipal Gymnasium: a series of Alternative Problems in Design submitted by candidates for the R.I.B.A. Final Examination. The drawings will be on view all next week.

The Examinations: Intermediate, Final and Special.

The Council give notice that these Examinations will be held once only this year, the Intermediate from the 2nd to the 9th June; the Final and Special from the 22nd to the 30th June.

Applications, with Testimonials of Study, &c., for the Intermediate must be sent in by the 15th April; for the Final and Special by the 6th May.

Discontinuance of the Preliminary Examination.

The Preliminary Examination for the registration of candidates as Probationers will be discontinued.

Candidates for Probationership will for the future be required to submit certain certificates, full particulars of which were given in the last number of the JOURNAL, and to be obtained on application to the Secretary R.I.B.A.

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